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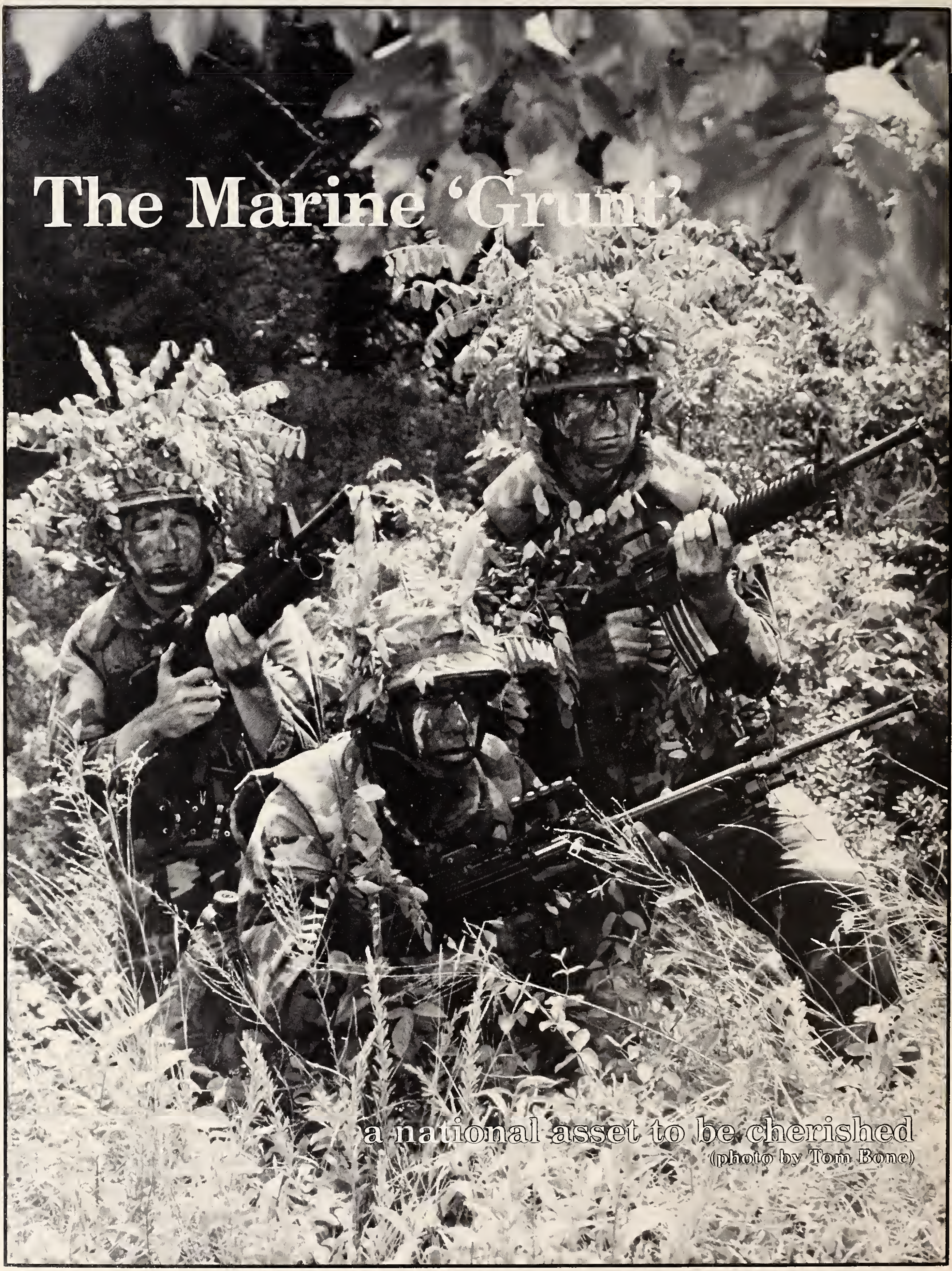
Profile

a guide to military careers

April 1986

The Marine 'Grunt'



a national asset to be cherished
(photo by Tom Bone)

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Profile

a guide to military careers Vol. 29 No. 6 April 1986

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Front: Airman Steve Heinselman, a computer operator stationed at Langley Air Force Base, Va., replaces a tape disc in the 1912th Information Systems Support group computer room. (Photo by Linda Mitchell)

Back: A Marine Corps small arms repairman disassembles and inspects a .45 caliber service pistol. In addition to repairing and issuing infantry and assault weapons, small arms repairmen inventory and guard Marine Corps armories. (Photo by Linda Mitchell)

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Putting the "Byte"

**story and photos by
Linda Mitchell**

FORTRAN. COBOL. Bytes, megabytes, programs, tape drives, laser printers, and cathoid ray tube terminals.

To some people, these phrases are part of a foreign language. To others, the vocabulary is as familiar as their native tongue. Part of the universal computer language, these terms flow from the mouths of computer whizzes as easily as do their names, addresses, and telephone numbers.

"One 'hazard' of the job is that computer specialists become so invovled, they constantly speak the 'language'," laughed Senior Airman Scott Grim, a computer programmer in the 2045th Information Systems Group Data Automation office at Andrews Air Force Base, Md. "Often, they have to stop and translate for people working outside the career field."

Computer specialists say it's easy to become involved in the multi-faceted field. "Air Force Data Automation offices serve all organizations on base, and many off base," said Sgt. Mike Drayton, a computer operator at Andrews. "My computer room assists customers throughout the Washington, D.C. area, including the Pentagon and Bolling Air Force Base; Fort Meade, Md.; and Fort Belvoir, Va.

Tech. Sgt. Thomas Spencer, noncommissioned officer in charge of production control, 2045th Information Systems Support Group, Andrews Air Force Base, Md., readies a laser printer for computer supplied input.

Many base organizations feel that a base wouldn't function efficiently without them," Drayton said. "Without computers, supply accounts, pay and personnel records, and maintenance transactions would be handled manually, slowing everything to a near stand-still. Additionally, some aircraft like the airborne warning and control system (AWACS) E-3A Sentry, couldn't function without their on-board computer systems and programs.

"This is a customer oriented career field," Drayton continued, "although computer specialists don't often see the customer. Users tap into the computer through telephone links with their cathoid ray tube (CRT) terminals," he said.

Air Force computer programmers' work begins with the first data automation step—

into the Air Force

the program. "The customer tells the computer programmer the information he wants available on the final output," Grim said. "Putting it simply, writing a program for a new supply listing is similar to writing a program formula for balancing a checkbook on a home computer.

"Programmers write most programs in one of two computer languages, the common business oriented language (COBOL) or formula translation (FORTRAN)," Grim said. "The program, which is basically a diagram, tells the computer what to do.

"After establishing the formula, programmer and computer operators run the program through the system. The job controller/operator assigns file numbers and executes the program. Programmers monitor the job, isolate and correct program errors, and operate the data processing equipment. They then deliver the finished product to the customer," Grim continued. "Once the program is established, the customer inputs any additional information using his CRT."

Computer programmers routinely analyze and update all types of programs. They also develop new and improved processing procedures.

Although computer programmers write the programs, computer operators become more involved with the overall data automation picture. "Operators work in several sections of data automation. Presently, I am a monitor," Drayton said.

"When CRT problems occur," Drayton continued, "customers call data automation monitors for assistance. After calling up the customer's account information on word processor micro-computers, monitors attempt to troubleshoot the problem. If they can't correct the problem over the phone, they dispatch a computer maintenance team to the site."

Senior Airman Scott Grim, a computer programmer at Andrews Air Force Base, Md., checks a computer printout for programming errors.

CRT inputs normally process directly to the computer rooms two main frames (separate computers). "Operators work with peripheral automated data processing equipment, including tape drives, card readers, card punchers, laser and line printers, computer consoles, and remote terminals," Drayton said. "For example, operators use the card punch to keypunch new programs onto computer cards. They then feed the punched cards into the card reader which 'reads' the cards and provides the information to the remote terminals and printers.

"The remote terminal, which sends the information directly to the customer, is the fastest transmission method," he added. "But if the customer requires a hard copy listing, the printer prints the information on paper. The laser printer can provide the same information at a rate of two pages a second. The computer operators then separate the listings before delivering them to the customer.

"The tape drives store all information fed through the computers on reel-to-reel tapes," Drayton said. "Operators ensure the computers, peripheral equipment and programs operate properly. Aside from ensuring programs don't abort, operators isolate and recover machine stops or malfunctions caused by electrical or mechanical failures."

Computer operators also maintain tape files, label and store used reels, demagnetize and clean tapes, and prepare

Sgt. Mike Drayton, a computer operator in the 2045th Information Systems Support Group data automation office, Andrews Air Force Base, Md., feeds keypunched cards into a card reader.

and label new tapes.

"In addition to working in the operations, monitoring and production control sections, computer operators perform preventive maintenance on the machines," Drayton said. "This includes cleaning the tape drives and tape heads, and changing the reels. The computer room atmosphere and equipment must be kept dust free," he added. "Dust in the machines will foul up both the programs and the machines."

The path to becoming a computer programmer or operator is challenging. Minimum scores of 57 for operators and 71 for programmers are required on the mandatory Electronic Data Processing Test. "The technical schools, both at Keesler Air Force Base, Miss., teach the basics of computer language, programming and operation," Grim said. "However, because of the fast pace, students must quickly comprehend each phase. The programmers' school is 11 weeks, and the operators' course is six weeks. Any background students may have in computer science and math, particularly in reasoning subjects like algebra and geometry, will be helpful.

"Aside from learning the equipment and computer languages, programmers study the basics of program writing," he added. "Because the Air Force employs a variety of computers, detailed training on a particular system is completed at the student's first duty assignment."

"The field's best aspect is the technical education," Drayton said. "Along with the technical school training, computer specialists can take related courses at off-base colleges, or earn an associate degree in computer sciences through the Community College of the Air Force. In addition, computer operators and programmers usually learn each other's jobs through job interaction."

The education and training computer specialists receive prepares them for work in this high-tech, fast-paced career field. "I sometimes think this is a power job," Drayton said. "High ranking officials in the Pentagon rely on my office to keep the computers operating and the information flowing.

"The computers, FORTRAN and COBOL languages, and peripheral equipment enable computer specialists to translate complicated programs into easy-to-understand products," Drayton added. "These products may affect decisions made by the Pentagon and base officials. That's an awesome responsibility for the Air Force's computer specialists."

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A *matter of*

Against the dusky pink and purple backdrop of a September sunset, a lone AV-8B Harrier approaches the airstrip for landing. As the plane gradually loses altitude,

Lance Corporal Bernie Fitzpatrick Jr., a Marine hydraulic/pneumatic fluids technician, performs a chemical analysis of an aircraft's hydraulic fluid to ensure the fluid is free of impurities. (Right) Staff Sgt. Tim Schuster and Lance Corporal Fitzgerald, hydraulic/pneumatic fluid technicians at Marine Attack Squadron 331, Marine Corps Air Station, Cherry Point, N.C., check an AV-8B Harrier's fuel lines for blockage.

CHEMISTRY

the pilot pushes the lever to release the landing gear. A soft thud and a panel light advises the pilot that the gear has lowered. The pilot guides the Harrier down, applying the brakes as the wheels touch the runway. The pilot slowly taxis the aircraft toward the hangar. Another day's mission is complete.

“It's a great feeling watching the aircraft I worked on take off and land safely,” said Marine Corps Staff Sgt. Tim Schuster, a hydraulic/pneumatic fluid technician at Marine Attack Squadron (VMA) 331, Marine Aircraft Group 32, Marine Corps Air Station, Cherry Point, N.C.

Hydraulic/pneumatic fluid technicians maintain the aircraft hydraulic and nitrogen systems, including the landing gear, flight controls, brake and steering systems.

“Hydraulic/pneumatic fluid technicians service the reservoirs and pipes through which the hydraulic and pneumatic fluid flows to various aircraft systems,” Schuster said. “The fluids flow through these reservoirs whenever the aircraft engine is on.

“When not repaired or replaced regularly, the reservoirs can clog up or corrode, preventing the fluid from pumping through the system. If the pumps go dry, they decay, and more importantly, the systems won't function,” he continued. “This type of damage can cause aircraft to crash, or at the very least, be extensively damaged.

“Operating an automobile engine with clogged fuel or lubricant lines creates similar results. Without the lubricants, the engine's systems break down and quite often it quickly overheats or catches fire,” Schuster explained.

“To prevent reservoir breakdown and corrosion,” said Lance Cpl. Bernie Fitzpatrick Jr., a co-worker of Schuster, “technicians perform scheduled maintenance on the systems. They check the systems for corrosion daily. For example, hydraulic/pneumatic fluid technicians check and clean the landing gear struts, ensuring they don't leak. The struts act as shock absorbers and supports for the aircraft,” he explained.

“They also run chemical tests on the hydraulic fluid, checking for contaminants,” Fitzpatrick added.

“Inspections and repairs are done during scheduled phase maintenance after every 100 flying hours,” Schuster said. “Each maintenance shop is assigned a certain position depending on which phase is scheduled. Hydraulic/pneumatic maintenance personnel work on one section of the plane, while other maintenance technicians work on other areas. Then during the next maintenance phase, the shops switch places. This ensures two shops won't be working on the same area at the same time.”

“During phase maintenance hydraulic/pneumatic fluid technicians test the emergency pneumatic landing gear,” Fitzpatrick said. “The normal landing gear has a hydraulic retraction system, which the pilot engages to raise or lower the wheels. However, in the event that the hydraulic gear can't be lowered, the emergency pneumatic system is forced, or ‘blown down’ by compressed air,” he explained. “Hydraulic/pneumatic fluid technicians ‘blow down’ and raise the emergency gear, checking for corrosion and operational deficiencies.”

Aircraft hydraulic and pneumatic systems training lasts several months. “After boot camp, hydraulic/pneumatic maintenance personnel attend 10 weeks of basic hydraulics school at Memphis, Tenn. Students learn the ‘nuts and bolts’ of the job, including tools, chemical formulas for testing fluids, and basic aircraft systems,” Schuster said.

“Students then report to a squadron training management element (TME), where they learn to repair a specific aircraft. TME is their hands-on training,” he continued. “During the five-week period, trainees learn corrosion control while becoming familiar with the aircraft's hydraulics system and repair publications. After completing the course, students transfer to their first permanent duty assignment.”

Hydraulics/pneumatics personnel assigned to AV-8B Harrier squadrons also attend a Fleet Readiness Aviation Maintenance Program (FRAMP). “Eight weeks of ground support lectures and hands-on training are geared specifically to the AV-8B,” Schuster said. “By the time they arrive at their first duty assignment, they're ready to work.”

“It's a difficult job with some long working hours, but I enjoy it,” Fitzpatrick said. “When I finish a job, and watch the aircraft take off, I sit back and say, ‘Hey, I just fixed that aircraft.’ To me, that's a terrific feeling.”

Information Addresses

Department of Defense

OASD (PA)
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Job skills and programs

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G-PMR
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Naval Historical Center
Naval History Division
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U.S. Coast Guard Headquarters
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National Guard/Reserve

Army and Air Force National Guard Bureau
(NGB-10)
Washington, D.C. 20310

Chief of Army Reserves
Rm 1D428, Pentagon
Washington, D.C. 20310

Headquarters Air Force Reserve/RS
Robins AFB, Ga. 31098

Marine Corps Opportunities
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Los Angeles, Calif. 90038

Navy Opportunity Information Center
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Law enforcement

the mission of the decade

During a mock boarding, Coast Guard members apprehend a "boater" suspected of smuggling drugs.

story by Karen Murdock

A boat slips quietly through the water under cover of darkness. The craft, which is carrying an illegal cargo of marijuana, has nearly made it to it's destination. Suddenly, a bright light pierces the night and the radio crackles... "This is the Coast Guard... prepare to be boarded."

As the sun breaks the horizon, the Coast Guard vessel tows the seized craft into port. The boarding party has arrested the crew and informed them of their rights. The contraband has been tested and tagged as evidence. A scene from a popular television show? No, it's part of the job Coast Guard law enforcement personnel perform daily.

"Law enforcement is the mission of the decade for the Coast Guard," explained Lt. Mark Kern, assistant chief of the Maritime Law Enforcement School at the Coast Guard Reserve Support Center in Yorktown, Va. "The Coast Guard enforces all maritime laws, but the drug-smuggling cases attract the most attention. Other cases law enforcement personnel handle include boating safety, fishery laws, conservation, weapons regulations and immigration violations.

"Ensuring commercial fishermen comply with fishery laws is a tough job, especially in the North Atlantic. The Coast Guard ensures the fishermen obey the laws by keeping only certain species and sizes of fish, using legal nets and gear, and carrying permits to enter and take fish from U.S. waters," Kerns explained.

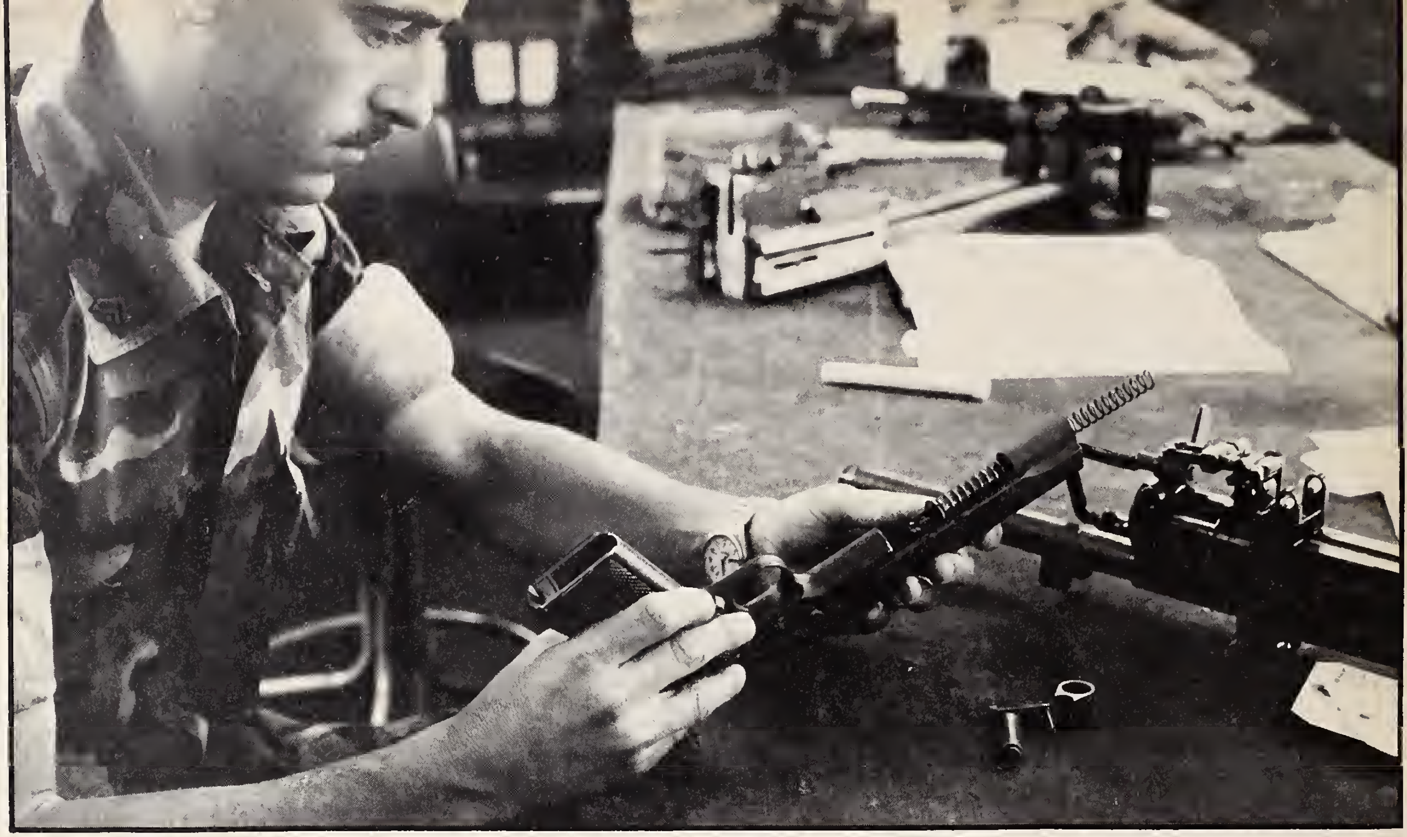
"The Coast Guard works with other federal law enforcement agencies including the Customs Service, the Drug Enforcement Agency and the Immigration and Naturalization Service," Kerns said. "When a law enforcement team brings prisoners in, one of these agencies takes custody and begins legal proceedings."

The Coast Guard has the authority to board all U.S. vessels anywhere in the world. If a foreign vessel shows evidence of not complying with U.S. laws, the Coast Guard must obtain permission from the country of registration before boarding. However, most boats seized for drug smuggling are U.S. vessels.

"There is no right or wrong way to board a vessel. Each boarding is different," he explained. "During the six-week basic law enforcement course, the instructors don't tell the students 'this is how it's done.' They attempt to build the student's confidence by performing mock boardings and developing the student's ability to anticipate the unexpected. Students learn to recognize and identify drugs and different smuggling techniques. As long as the boarding accomplishes law enforcement objectives, and the boarding officer follows correct professional procedures, there won't be any problems.

"It's an exciting job, but it does present dangers. No one has ever shot at boarding officers, but boats have tried to ram Coast Guard vessels," Kerns explained. "We train our boarding officers to avoid situations where lives could be in jeopardy."

Armed with experience, knowledge of proper procedures and solid training, Coast Guard boarding officers search the seas for smugglers and safety violations, fulfilling their mission as law enforcement personnel. "Even though the drug smuggling cases make the headlines," Kerns concluded, "Coast Guard boarding officers know each case is equally important in getting the job done."



Armory Artisans

story and photos by Linda Mitchell

When Marine Corps infantry personnel move out for combat or field training, they carry their best friends. Though not the hairy, four-legged variety, these friends offer maximum protection when used and cared for properly.

"It's the user's job to clean his weapon. However, small arms repairmen manage the armories where the weapons are repaired and stored," said Sgt. Phil Daum, a small arms repairman at the Infantry Training School, Camp Geiger, N.C. "Small arms repairmen locate and correct discrepancies, including checking gauges and ensuring battels are straight. They also inspect firing pin functions, and look for cracks, worn parts or defects in the assembly."

Marine Corps armories contain weapons and equipment such as rifles, and assault, .50 caliber and 40mm machine guns. "We repair and store .45 caliber pistols; mortars; tube launched, optically tracked, wire command link (TOW) guided missile systems; and subcaliber rocket launchers," said Cpl. Rob Sanders, a small arms repairman at Camp Geiger. "In addition, we repair M47 surface attack guided missile systems (Dragons)."

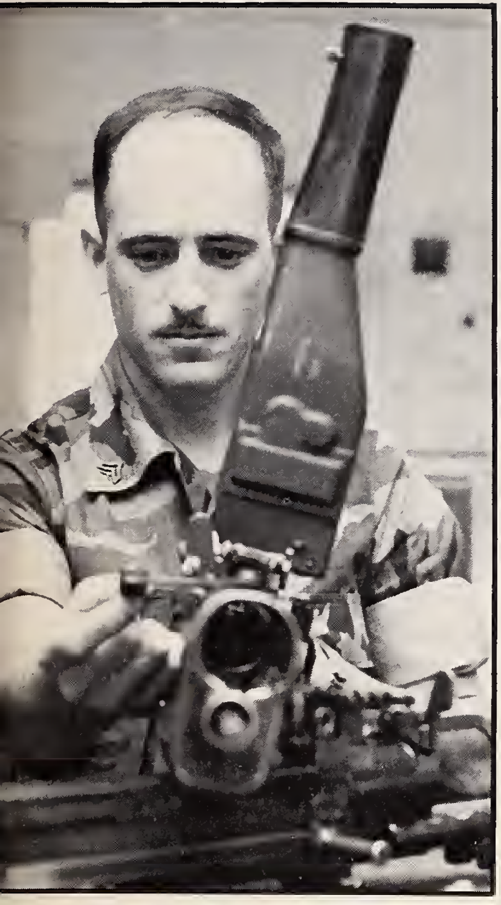
Small arms repairmen also stand 24-hour duty watches over the armory. "The duty person first inventories and signs for weapons and equipment in the armory or equipment previously issued to training units. He then ensures weapons required for the training day are ready, verifying that limited technical inspections (LTIs) have been performed," Daum continued. "LTIs determine the weapons will function as required. Defective weapons are pulled and equipment repair orders filled out. Small arms repairmen perform repair and replacement work after the issue is completed."

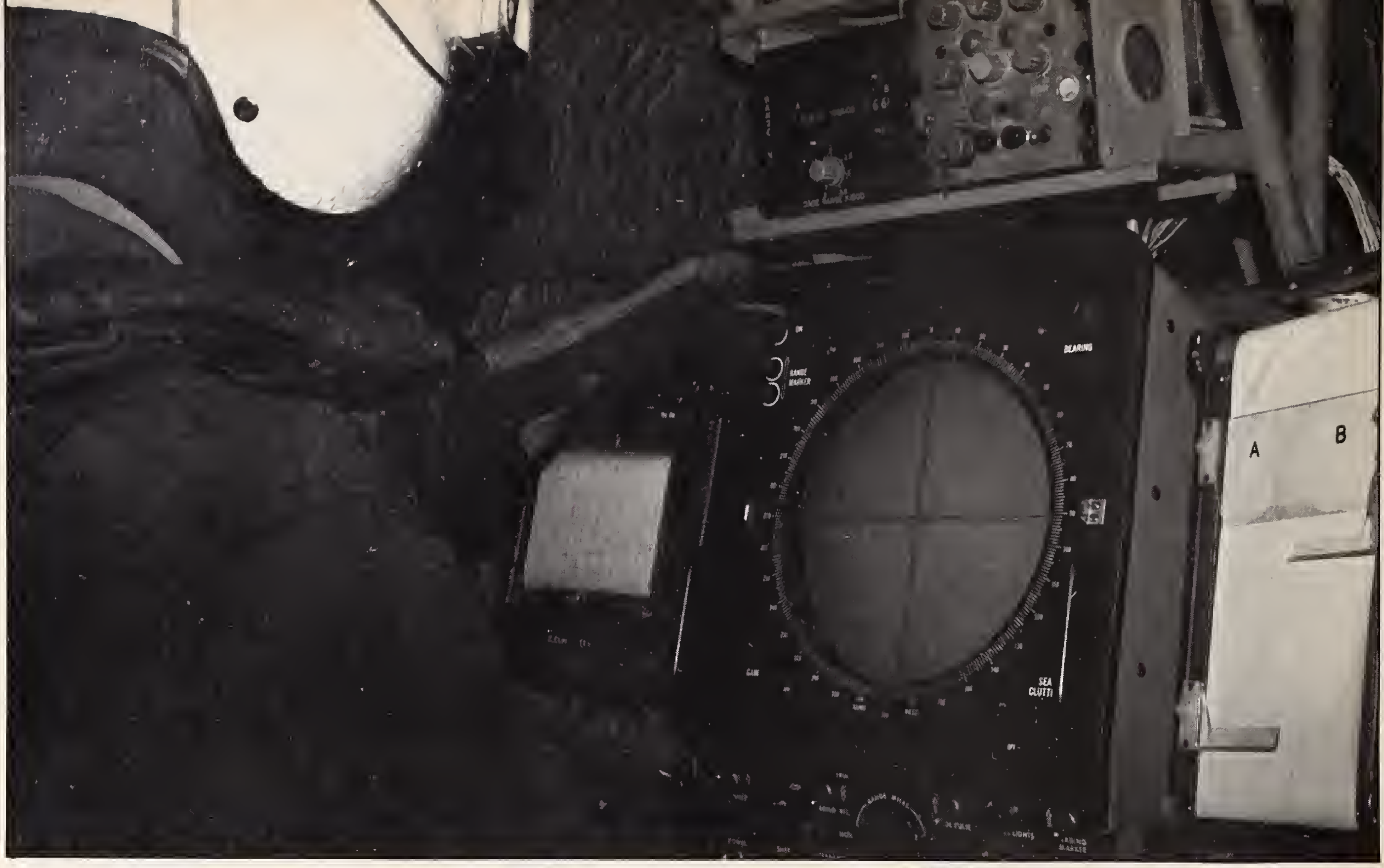
When weapons are issued for live fire field exercises, small arms repairmen accompany the unit. "Repairmen make on-the-spot replacements from a spare parts kit. Weapons that can't be repaired in the field are returned to the armory and replaced," Sanders said.

Weapons are issued for specific training cycles ranging from one-day rifle qualification to 28-day infantry training schedules. "Before graduation from infantry training, recruits have three days to strip and clean the equipment. Prior to turn-in, we inspect each piece for cleanliness, and ensure discrepancies are corrected. After the turn-in, repairmen perform another LTI," Daum said.

"Having mechanical aptitude and manual dexterity would aid potential small arms repairmen," Sanders said. "Marksmanship skills aren't necessary, but it sometimes helps to know how the weapon operates to fix it properly."

"What this job boils down to is making sure weapon fires at maximum potential to protect the user," Daum concluded.





Sea Searchers

story by Dave Marriott
photos by Rick Johnson

Hundreds of feet above the ocean's surface, a man sits silently studying a television monitor. Comfortably clad in a flight suit, boots, helmet and goggles he watches as groups of lines, dots, and dashes appear, then disappear on the screen before him. Suddenly a grouping appears which demands closer scrutiny. He quickly reaches forward to adjust several of the console knobs, fine-tuning the image. A few moments of careful inspection confirms his initial belief—the helicopter's sensors have detected a submarine gliding through the water somewhere beneath him.

The man is a Navy aviation anti-submarine warfare operator (AW). A sailor trained to locate, identify, and track submarines and surface ships travelling the earth's oceans. He uses a variety of highly sophisticated radar, sonar and electronic surveillance equipment to accomplish his mission. An aircraft or helicopter serves as his office.

"Aviation anti-submarine warfare operators fly in both long and intermediate range fixed-wing patrol aircraft and helicopters," said Chief Petty Officer Timothy Weinzetl, an aviation anti-submarine warfare operator stationed at Norfolk, Va. "The type of equipment he uses depends on whether he's an accoustic or non-accoustic sensor operator.

"Non-accoustic AWs usually work on partrol aircraft using electronic counter measures (ECM), magnetic anomily detection (MAD) equipment, and forward-looking infrared radar (FLIR). All these sensors are capable of detecting a submarine at great distances by using the sub's own equipment," Weinzetl explained. "The MAD sensors locate a submarine by detecting the flux its metal hull creates in the earth's magnetic lines. The ECM equipment locks onto a submarine's radar, and the FLIR equipment locates a sub by its heat trail.

"The equipment accoustic AWs use monitor the ocean's sound," he continued. "Accoustic sensors are either bouys equipped with suspended microphones which aircrews drop in the water, or in the case of some helicopters, hydrophones which are lowered and then retrieved. Both the bouys and hydrophones record the sound waves on a paper graph or a cathode ray tube (CRT, a television type monitor) in the aircraft.

"The accoustic sensors data is harder to analyze than non-accoustic data," Weinzetl added. "Everything moving in the ocean makes some degree of noise, and every noise registers on the AW's graph or CRT. The accoustic AW must be capable of identifying which lines are ships and which are whales and fish.

"Also, each class of ship (submarines; destroyers; battleships, etc.) has a distinct sound which registers a distinct signature (pattern of

(Left) Petty Officer 2nd Class Ken Eskew, an aviation anti-submarine warfare operator (AW) stationed with Light Helicopter Support Squadron Thirty, Norfolk, Va., locates, tracks and identifies submarines and surface ships by monitoring the ocean's sounds and movements. (Right) Petty Officer Eskew prepares to drop a life preserver into the ocean as part of a search and rescue (SAR) mission. Only a select number of Navy AWs assigned to helicopter squadrons are SAR trained and qualified.

lines). AWs must be able to recognize which signatures are subs and which are surface ships."

Navy aviation anti-submarine warfare operators' training begins with a two-week course on aviation fundamentals at Memphis, Tenn. After learning basic aviation theory, AW trainees spend approximately 12 weeks studying the basic skills required to perform their jobs.

"A large portion of an AW's school training is in oceanography," Chief Petty Officer Frank Walker, an aviation anti-submarine warfare operator at Norfolk, Va., explained. "Prospective AWs learn what water does to sound. They learn how temperature and air pressure affect the ocean's density, and how the water's density affects the way sound is propagated through both fresh and salt water. They spend weeks listening to the ocean's sounds, learning how to distinguish between the background sounds of sea life and the sounds of ships and submarines. They also receive familiarization training on all the Navy's accoustic and non-accoustic sensors.

"After they've finished the school at Memphis, they attend the five-week Naval Air Crewman Candidate School in Pensacola, Fla.," he continued. "After passing a flight physical, they begin the basic survival training required of all Naval flight personnel. Students learn how to battle and survive the elements in the event their aircraft goes down. The course emphasizes proper physical conditioning. Students swim and exercise daily. Because the school is so physically demanding, many students are unable to graduate," Walker added.

Aviation anti-submarine warfare operators complete their schooling in patrol or helicopter training squadrons. The type of squadron assigned usually determines the type of aircraft the AWs will work on for the remainder of their careers.

"Up to the time AW trainees transfer to training squadrons, their instruction has been strictly theory," Weinzetl said. "At the training squadrons, AWs learn on-the-job. They receive hands-on experience on all the detection equipment characteristic of the aircraft. They learn how to perform minor in-flight maintenance on their equipment and any additional responsibilities they may have as crewmembers. They master all the skills required to become effective aviation anti-submarine warfare operators."

In addition to their normal duties, many aviation anti-submarine warfare operators assigned to helicopter squadrons train, and qualify, as Navy search and rescue (SAR) swimmers. "The SAR aspect of the job seems extremely attractive to many of our younger AWs," Walker said. "By the time they finish their technical schooling and SAR training, they're so motivated, so gung-ho, they can't wait to jump from a helicopter to save someone's life. I think this desire stems more from wanting to help their shipmates than from wanting to be a hero. SAR training instills a great amount of self-confidence in their own abilities.

"But, regardless of whether aviation anti-submarine warfare operators are SAR qualified or not, the nature of their jobs demands self-confidence and responsibility," he added. "Navy anti-submarine squadrons perform a vital function in our national defense. They keep the Pentagon informed as to the location of other countries' submarine forces. It's imperative AWs be able to quickly, and correctly, analyze the data the sensors provide. In a national emergency, their interpretations could be crucial.

"Aviation anti-submarine warfare operators shoulder a lot of responsibility," Walker concluded. "They must have self-confidence in their own abilities and analysis'. They can't afford to be wrong. An incorrect interpretation of data could adversely affect themselves, their shipmates, the Navy, or the nation."

Sgt. 1st Class William Mick, the reenlistment noncommissioned officer at Fort Eustis, Va., uses the Army's retention computer system to check available options for a soldier interested in reenlisting.

Staying military

Career counselors help meet career goals

story and photos by Karen Murdock

When military people finish their enlistment, it's a time for decisions. They must decide whether to reenlist or be discharged and return to civilian life. If they choose the miltary, they may pick a new duty station or job skill. To help guide their members with these decisions, each service has professional career counselors.

Career counselors balance the service's needs against the wants of the individual soldier, sailor, airman, or Marine. The counselors explain the advantages of a military career and help service members set career goals.

Sgt. 1st Class William R. Mick, the reenlistment noncommissioned officer at Fort Eusits, Va., said, "As a career counselor, I examine the soldier's goals and expectations and explain what's available during the next enlistment.

"When a soldier comes to me asking about reenlistment options, I rely on the retention computer system to supply the answers. The computer worksheet lists all the opportunities available to the soldier," Mick explained. "The Army attempts to place soldiers in the jobs and locations they want. If the soldier is happy, the Army gets a better performer. However, it's not always posible to get the soldier exactly what's wanted," he added.

Mick has been a career counselor since 1977. "To be selected as an Army career counselor, the soldier has to apply for the job," Mick explained. "Generally, soldiers become career counselors following a tour of recruiting duty. The job's only restrictions are rank and time in service. Career counselors must be staff sergeants with eight or more years in the Army.

"It's an interesting job. I take an interest in every soldier I counsel. This involvement is important," Mick said. "I'm advising soldiers to stay in the Army. I want them to be satisfied. I want them to receive every option or bonus they're eligible for."

Involvement is also the name of the game for Staff Sgt. Zackery Davis, career advisor at Langley Air Force Base, Va. "As an Air Force career counselor, I explain the advantages of reenlisting to airmen and their families. If the military can help accomplish personal goals, such as getting a degree or training in a specific area, why not stay in? However, everyone makes their own decisions. I suggest career progression opportunities based on the needs of the Air Force and the desires of the airman, but I can't and won't make decisions for anyone," Davis said.

"Sergeants and above are eligible to become career counselors. They obtain on-the-job training before going to the career adviser course at Kessler Air Force Base, Miss., to get a feel for the job," Davis explained.

To become a Navy career counselor, a sailor must be a petty officer second class and eligible for promotion, according to Navy Counselor Petty Officer 1st Class Sharon L. Gray, at the Atlantic Fleet Headquarters Support Activity in Norfolk, Va.

"My job includes many additional duties. Besides interviewing each sailor on reenlistment options, I handle permanent change of station orders, welcome new people to the command, conduct retirement and separation seminars and teach leadership classes," Gray said. "I enjoy the work. There's never a dull moment."

Gunnery Sgt. Henry Rodes, the career planner at Marine Barracks, Norfolk, Va., said, "When I interview a Marine, I look at long range goals. I counsel him or her on educational opportunities, officer programs and promotion possibilities. In the case of younger Marines, I try and talk with their families, let them know the advantages of their spouse reenlisting."

To become a Marine Corps career planner, the Marine applies for the position and is selected by Headquarters Marine Corps to attend the five-week course at the Fleet Training Center at Norfolk. "The career planner serves a minimum three year tour," Rodes explained. "A Marine career planner has to be a salesman, and he must believe in the Corps. I enjoy seeing good Marines staying in the Corps," he added.

Making sure good people stay in is also the job of Coast Guard Chief Petty Officer Douglas G. Squires, career information specialist at the 5th Coast Guard District Office in Portsmouth, Va. "I make sure people considering reenlistment have the most up-to-date facts. I don't persuade anyone to stay in. I supply the facts, then counsel the member on the available opportunities," Squires said.

"I also keep track of the non-rated personnel—Coast Guardsmen who haven't selected a specific career field. I explain which fields are available, what the job entails, and promotion opportunities within the field. If people are happy with the field they're in, there's a possibility they'll make the Coast Guard a career," Squires explained.

"During a reenlistment interview, I may not always have all the answers. But if a service member has a question, I'll research it until I find the answer," he concluded. "It's all part of the job. Without the facts, how can I expect anyone to reenlist?"

With the help of career counselors, each member of the armed service has the opportunity to further a career in the military and meet or exceed personal and professional goals.

Gunnery Sgt. Henry Rodes, (Left) the career planner at Marine Barracks, Norfolk, Va., discusses reenlistment options with a Woman Marine.

Movin' on down the road

story and photos
by Karen Murdock

A 14-ton tractor trailer, loaded with Army equipment and supplies, rolls down the road toward Fort Jackson, S.C. The drive from Fort Eustis, Va., has been uneventful and the truck is on schedule.

The Army driver, a soldier, knows that once he returns to his unit, there's still work to be done. He has driven a few hundred miles and, even though it means working late, he knows it's important that he prepares the truck for his next trip. He'll be back on the road tomorrow.

"Our drivers average approximately 56,000 miles each month," explained Sgt. 1st Class Billy D. Mann, truck master for the 10th Transportation Medium Truck Company at Fort Jackson, S.C. "Our unit works seven days a week, 24 hours-a-day."

The unit transports recruits to and from Fort Jackson training areas. "My unit is Fort Jackson's only transportation company. Our motto is 'We Carry Fort Jackson,' and my drivers actually do. They transport anywhere from 2,000 to 3,000 troops daily. In addition to hauling troops, the drivers haul cargo long and short distances," Mann said. "The unit travels all over the country. These long trips serve a two-fold purpose—transporting cargo between bases and practicing convoy formations."

The vehicle which Army heavy wheeled vehicle operators drive is the M915—a 14-ton tractor trailer rig with a 16-speed semi-automatic transmission, a 400-cubic inch diesel engine and a 40-foot trailer. "It's relatively easy to drive these rigs. I feel more confident driving my truck than I do my car. The truck seems to maneuver better," Mann said.

"There's more to driving a truck than just jumping into the cab and traveling down the road," he continued. "The drivers inspect their trucks before each trip. They walk around the truck looking for fluid leaks, flat tires and loose equipment. They also lift the hood and check fluid reservoir levels and the condition of fan belts and radiator hoses."

After starting the truck, the driver waits until the engine builds up air pressure. "The gauges have to read 90 pounds per square inch (psi) or the hydraulic system won't work. The primary braking system works off air—if the pressure falls too low, the driver can't stop the truck. A warning buzzer sounds if the pressure falls below 90 psi," Mann explained.

"If a person joins the Army who has three or more years of commercial driving experience, they aren't required to attend Heavy Wheeled Vehicle Operator's school," Mann said. Soldiers without prior experience attend a seven-week, three-day course at either Fort Dix, N.J. or Fort Leonard Wood, Mo. The students learn to drive every vehicle in the Army's inventory.

"It's a progressive course," Mann explained. "Students begin by driving the jeep and subsequently train on every vehicle in the Army's inventory, up to and including the 14-ton M915. They practice driving in convoys and during field and off road operations."

Each Army transportation unit has its own driver training and licensing program. "My unit's new drivers complete a 45-

With his hand firmly on the wheel and gearshift, Sgt. 1st Class Billy D. Mann, prepares to "move out" in the lead vehicle of an Army tractor trailer convoy.

(Above) Using a technical manual as reference, an Army heavy wheeled vehicle operator inspects the undercarriage of a commercial utility cargo vehicle for damage. (Below) In addition to driving, heavy wheeled vehicle operator's are responsible for maintaining their vehicles. Here an operator struggles to loosen a truck tire's lug nuts.

day orientation course which familiarizes them with the post and certifies they're qualified to handle the equipment," Mann said. "The main thing new drivers must learn is to anticipate problems before they exist and react quickly when they do exist. When I teach a class, I usually use an example from personal experience.

"A few years ago, I was driving down a mountain when I looked at the side mirror and saw a trailer beginning to pass me. All I could think was 'Who is this fool trying to pass me on this mountain road?' Then I realized it was my trailer starting to 'jack knife.' Because of my training, I was able to anticipate the trailer's movements and correct the situation before I lost control," Mann explained.

"The soldiers in my unit are no different from soliders in any other transportation company, they all work hard—no one sits idle. All Army drivers earn their paychecks. They spend as much time and effort performing maintenance on vehicles as they do driving them. But they have to," Mann concluded. "After all, if heavy wheeled vehicle operators couldn't drive their trucks because of maintenance problems, the Army couldn't move."

'Old Spain' meets the New World

story by Rick Johnson

There's a place described as an island as close to Paradise as man will ever see. It's an island where palm-fringed beaches and vivid green mountains glisten in the warm sunshine; where ancient fortresses and churches contrast with modern factories and hotels; where Old Spain meets the New World.

This unique combination of landscape, climate, culture and architecture are just some of the ingredients which make PUERTO RICO an exciting and enjoyable tour of duty for many military members.

The island, a United States possession since 1917, has been home to millions of American service members for more than 60 years. Army, Navy, Coast Guard and Marine Corps personnel have called one of the six military installations in Puerto Rico home since the Army established its first base on the southern shore of San Juan Bay. The site, known as Camp Buchanan, served as a target range and maneuver area for Army and National Guard troops until 1939. In 1940, the 300-acre camp became Fort Buchanan.

The Navy moved to the island in 1943 when the area designated as Roosevelt Roads was commissioned a U.S. Naval operation base. The base was recommissioned as U.S. Naval Station Roosevelt Roads 14 years later. Today, more than 3,500 sailors, Marines and their families live at Roosevelt Roads and two other Naval facilities—Viegues Island and Sabana Seca.

The Coast Guard Section, Greater Antilles, operates in the Caribbean surrounding Puerto Rico and covers an area of more than one million square miles. Coast Guard personnel operate two bases on the island—Coast Guard Base San Juan

(Left) Built around the turn of the 17th century, the hulking fortress of El Moro is one of the best-known historic sites in Puerto Rico. (Below) Cascading miniature waterfalls lace El Yungue. Located about 30 miles east of San Juan, El Yungue is the island's principal rain forest. (Official U.S. Navy photos)

and Coast Guard Air Station Borinquen. Their missions include search and rescue, aids to navigation, marine law enforcement, pollution control and Merchant Marine inspection.

During off duty hours, many military personnel shop in the local communities, experiencing the many colorful and interesting foods and products; or tour the island's cities viewing the numerous examples of historic architecture. Old San Juan provides the curious sightseer with a "treasure chest of history" including El Morro and Fort San Cristobal, San Juan Cathedral and La Fortaleza (residence of Puerto Rico's governors for more than 300 years). The island also abounds in old towns, whose tree-shaded plazas are the site for many local fiestas.

The Lugillo National Forest, which is the only tropical rain forest in the U.S. National Park system, offers nature enthusiasts and residents alike the chance to stroll through acres of tropical flowers, tree ferns and bamboo stands, or cool their feet in a sandy-bottomed pool at a waterfall's base.

Puerto Rico's warm Caribbean climate allows the island's avid sports fans to play baseball, basketball, golf and tennis year round. Other favorite outdoor activities include fishing, football, soccer and surfing.

The people of Puerto Rico are citizens of the United States, and although the island has preserved its Hispanic flavor, San Juan (the oldest city under the American flag) represents a typical busy American metropolis.

The landscape, climate and language set Puerto Rico apart from most other regions of the United States . The rare combination of warm Caribbean sunshine and the natural air-conditioning of trade winds combined with Puerto Rico's natural beauty truly make it "an island paradise."

LONG RANGE AIDS

- finding the way

story and photos
by Karen Murdock

The ship has been at sea for several days. There's nothing but water and sky for miles around. Because the ship's captain can't rely on sign posts, road maps or other traffic to navigate the ship to its destination, he keeps the ship on course using Long Range Aids to Navigation (LORAN).

"The principals of LORAN have been around since the 1940's," explained Chief Warrant Officer M.A. Williams, school chief of the LORAN School at Governors Island, N.Y. "Navigators take fixes on their location by plotting hyperbolic lines (a curved line that remains constant) on a map after receiving electronic signals transmitted from LORAN stations around the world."

The transmission patterns of LORAN stations form a worldwide grid system which the Coast Guard manages, maintains and operates.

Two LORAN stations are required to get a hyperbolic line and three are needed to get a fix on location. Energy travels at the speed of light and is very accurate in both speed and time. If a signal is transmitted between two stations, the length of time it takes to travel is measured and used to compute how far the signal traveled.

"Since the navigator doesn't know where he is and only has an idea where the LORAN station is, receiving just one signal isn't going to help him much," explained Petty Officer First Class Steve Northrup, an instructor at the LORAN school. "The navigator measures the signal to find exactly where the stations are by measuring the distance in time on an oscilloscope. He then plots it on a graph as a hyperbolic arc between the two stations. The navigator now knows he's a certain distance from the transmitting and receiving LORAN stations. He switches his controls to receive signals from two other stations (actually using one of the original stations a second time) and repeats the procedure. The points where the two hyperbolic lines cross is the navigator's exact location.

"That's LORAN in simple terms," Northrup said. "However, problems can occur. The LORAN stations transmit pulses periodically; they don't transmit a constant signal wave. Even though energy travels at a constant speed, if the pulses aren't transmitted from exactly the same place with the same time interval frequency, the navigator's computations could be wrong. It's critical to keep these pulses constant. The general accuracy in the user field (the area between the LORAN stations) is less than a quarter of a mile.

"To monitor and boost the LORAN signal, LORAN technicians also staff remote stations called Primary Chain Monitor Sites (PCMS). These sites are equipped with a computer that receives and transmits the LORAN signal. They also send signal information to the control stations. At many of these remote sites, the technician repairs equipment, such as the monitor and transmitter, if it breaks down. The computer automatically makes all the adjustments to keep the signal constant," Northrup explained.

At the control station, LORAN technicians monitor signal strength, noise, time and pulse shape 24 hours-a-day. The control computer alerts the crew when a remote station transmits an irregular pulse or has an equipment malfunction. When a malfunction occurs, control station technicians alert the remote station crew of their problem. The PCMS crews then have 60 seconds to switch to a backup system or get the primary signal back on time.

"LORAN is just one system navigators use," Williams said. "All navigational aid systems have limitations, including LORAN. The frequency spectrum LORAN uses is noisy and designed for surface vessels. Aircraft use LORAN only as a backup system. However, LORAN doesn't have one of the major limitations plaguing other systems, namely weather," he added.

"Students attending the LORAN school train for the specific position they'll fill. If a student will be stationed at a control station, his or her classes last from five to eight weeks. If the student is slotted for a transmitter site, he or she goes through an additional three-week course on site maintenance," Northrup explained. "In addition to American students, the school

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TO NAVIGATION

at sea

also trains people from various countries operating LORAN systems, such as West Germany, Italy and France.

"Serving as a LORAN technician is one of the few Coast Guard jobs offering an overseas assignment," Northrup added. "I'm getting ready to go to Yap (an island located between the Philippines and Guam). There are also stations in Japan, Germany, Italy, Alaska and Hawaii.

"Because of our limited assignments and the nature of our job, the LORAN technicians are one of the closest knit groups in the Coast Guard," Northrup concluded. "LORAN technicians have a lot of responsibility and plenty of pride in knowing that they guide the world's ships where they need to go."

(Above) A student at LORAN Technician's School uses an oscilloscope to monitor the frequency of a LORAN signal. (Below) A Coast Guard LORAN technician troubleshoots a transmitter for an electronic malfunction.

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Even if you're on the right track, you'll get run over if you just set there.

Will Rogers

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